opening to a maximum of one-half of the breadth of the deck in way of the opening. (See § 69.75, figure 8.)

(e) A space in a structure immediately below an uncovered opening in the deck overhead is an excluded space, if the opening is exposed to the weather and the space to be excluded is limited to the area of the opening. (See § 69.75, figure 9.)

(f) A recess in the boundary bulkhead of a structure which is exposed to the weather and which has an opening that extends from deck to deck without a means of closing is an excluded space, if the interior width of the space is not greater than the width of the opening and extension of the space into the structure is not greater than twice the width of the opening. (See § 69.75, figure 10.)

(g) Any space described in paragraphs (b) through (f) of this section which fulfills at least one of the following conditions is not an excluded space:

(1) The space is fitted with shelves or other means designed for securing cargo or stores.

(2) The opening that would otherwise permit the space to be excluded space is fitted with a means of closure.

(3) Other features of the space make it possible for the space to be closed.

§ 69.63   Net tonnage.

Net tonnage (NT) is determined by the formula:

$$NT = K_2 V_C \left(\frac{4d}{3D}\right)^2 + K_3 \left(N_1 + \frac{N_2}{10}\right),$$

in which:

V_c = total volume of cargo spaces in cubic meters.

$K_2 = 0.2 + 0.02 \log_{10} V_c.$

$$K3 = 1.25 \left(\frac{GT + 10,000}{10,000}\right)$$

D = molded depth amidships in meters, as "molded depth" is defined in § 69.53.

d = molded draft amidships in meters, as "molded draft" is defined in § 69.53.

N_1 = number of passengers in cabins with not more than eight berths, as "passenger" is defined in § 69.53.

N_2 = number of other passengers, as "passenger" is defined in § 69.53.

GT = gross tonnage as determined under § 69.57.

N_1 plus N_2 must equal the total number of passengers the vessel is permitted to carry as indicated on the ship's Passenger Certificate. If N_1 plus N_2 is less than 13, both N_1 and N_2 are zero.

$\left(\dfrac{4d}{3D}\right)^2$ must not be greater than unity.

$K_2 V_c \left(\dfrac{4d}{3D}\right)^2$ must not be less than 0.25 GT.

NT must not be less than 0.30 GT.

[CGD 97–057, 62 FR 51045, Sept. 30, 1997]

§ 69.65   Calculation of volumes.

(a) Volumes V and V_c used in calculating gross and net tonnages, respectively, must be measured and calculated according to accepted naval architectural practices for the spaces concerned.

(b) The volume of the hull below the upper deck is determined as follows:

(1) If the number and location of sections originally used in making other calculations which relate to the form of the vessel (such as displacement volumes and center of buoyancy) are reasonably available, Simpson's first rule may be applied using those sections.

(2) If the number and location of stations originally used are not reasonably available or do not exist and the hull is of conventional design with faired lines, Simpson's first rule may be applied using a number and location of stations not less than those indicated in § 69.109(g)(1).

(3) If the hull is of standard geometric shape, a simple geometric formula that yields a more accurate volume may be used.

(4) If the lines of the hull are not fair, the volume may be measured by using a combination of methods under this section.

(c) The volume of structures above the upper deck may be measured by applying the superstructure provisions in § 69.113 or by any accepted method or combinations of methods.

(d) Measurements must be taken, regardless of the fitting of insulation or the like—

(1) To the inner side of the shell or structural boundary plating, in vessels constructed of metal; and